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EXAMINER	
BELLO, AGUSTIN	

ART UNIT	PAPER NUMBER
2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/878,199	TAKETOMI, HISASHI	
	Examiner	Art Unit	
	Agustin Bello	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, 6, and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barry (U.S. Patent No. 6,433,903) in view of Ogawa (U.S. Patent No. 6,256,126) and Hirst (U.S. Patent No. 6,639,701).

Regarding claims 1, 6, 7, 8, and 10, Barry teaches a communication system (Figure 13) for performing optical communications, comprising: a WDM device (reference numerals 10', 60, 62, 64 in Figure 13) for providing supervisory control channels (reference numeral 60, 62 in Figure 13) for supervising optical communications (column 1 lines 6-9, 31-35 and column 3 lines 21-25), said supervisory control channels including a first optical supervisory channel (reference numeral 62 in Figure 13) whose transmission band falls outside of the transmission band for main optical signals (column 4 lines 57-67), and a second supervisory channel (reference numeral 60 in Figure 13) whose transmission band falls in an idle band in the transmission band for said main optical signals (column 6 lines 8-11), said WDM device (reference numerals 10', 60, 62, 64 in Figure 13) including supervisory control channel setting means ("TO/FROM USER EQUIPMENT" for the OMC 60 shown in Figure 13 and described in column 7 lines 54-63; "system operator" in column 5 lines 7-14 for the OSC in Figure 13) for setting said supervisory control channels, and WDM transmitting means (reference numerals

10'in Figure 13) for wavelength-multiplexing and -demultiplexing said supervisory control channels (reference numeral 60, 62 in Figure 13) and said main optical signals (e.g. "Data" shown in Figure 13), and a network managing device (e.g. "USER EQUIPMENT" inherent in "TO/FROM USER EQUIPMENT" shown in Figure 13 and further shown as reference numeral 30' in Figure 3)

Barry differs from the claimed invention in two aspects. First, Barry fails to specifically teach variably setting the supervisory control channels and including selection of an idle-band wavelength for the second supervisory channel. However, Barry suggests as much in that the supervisory control channels (e.g. OMC, OSC in Figure 13) are provided as a means for controlling parameters at various elements in the optical communication system according to the input of user equipment or system operators ("TO/FROM USER EQUIPMENT" for the OMC 60 shown in Figure 13 and described in column 7 lines 54-63; "system operator" in column 5 lines 7-14 for the OSC in Figure 13). As such, Barry suggests that the supervisory control channels do not remain static over time, but instead are varied over time by the user or system operator in order to achieve or maintain a desired performance parameter at the elements in the system. For example, according to the disclosure of Barry (column 5 lines 11-14), if the system operator determines that the output power at an in-line amplifier node is insufficient, the system operator will send the desired parameters to the in-line amplifier via the supervisory control signal so that the desired signal power or gain is achieved. Since the parameters of the system elements will vary over time, Barry's disclosure suggests that the supervisory control signal will also vary over time in that revised or nominal parameters will be sent each time a change in the element parameters is required. Regarding the selection of the of an idle-band wavelength for

the second supervisory channel, Barry suggests that this occurs since Barry explicitly teaches that the second supervisory channel (reference numeral 60 in Figure 13) has a transmission band that falls in an idle band in the transmission band for said main optical signals (column 6 lines 8-11). Clearly, the selection of the wavelength of the second supervisory signals takes place at some point in the system of Barry.

Second, Barry differs from the claimed invention in that Barry fails to specifically teach that the network managing means includes setting information indicating means for indicating setting information for setting said supervisory control channels to said WDM device, the setting information including wavelength information that specifies which idle-band wavelength to select for use as the second optical supervisory channel at the supervisory control channel setting means, and operating state managing means for managing a network operating state. However, Barry suggests that the network managing means includes setting information indicating means for indicating setting information for setting said supervisory control channels to said WDM device in that Barry shows that setting information is indicated from the "USER EQUIPMENT" (inherent in "TO/FROM USER EQUIPMENT" shown in Figure 13 and further shown as reference numeral 30' in Figure 3) and is carried to the optical management channel interface (e.g. via the communication link connected to interface 60 in Figure 13; "TO/FROM USER EQUIPMENT") and is used for setting (e.g. inserting control and management information) said supervisory control channels (reference numeral 60, 62 in Figure 13) to said WDM device (reference numeral 10' in Figure 13). Barry also suggests that the network managing means includes an operating state managing means for managing a network operating state in that

management traffic is circulated to each element in the system (column 7 lines 31-35) and is provided to the "USER EQUIPMENT."

Though Barry differs from the claimed invention as discussed above, one skilled in the art would clearly have recognized that variably setting supervisory control channels, providing setting information indicating means at the network managing means, selecting an idle-band wavelength for the second supervisory channel, specifying which idle-band wavelength to select for use as the second optical supervisory channel, and providing operating state managing means at the network managing means are well known in the art. For example, Ogawa, in the same field of endeavor, teaches it is well known in the art to variably set a supervisory control channel according to the number of wavelengths to be used in the system (column 4 lines 20-24; e.g. different number of wavelengths result in a change in the bit arrangement shown in Figures 2 and 5, hence a variance in the supervisory control channel). Furthermore, Hirst teaches that it is well known to make a supervisory signal variable in wavelength, thereby allowing the selection of the idle-band desired and consistent with the disclosure of Barry. Ogawa further teaches setting information indicating means (reference numeral 11 in Figure 4) in the network managing means (the managing means created by reference numerals 11 and 12 in Figure 4), and an operating state managing means (reference numeral 12 in Figure 4, which provides the operating state of the network via a "VALID" bit constantly monitored by all elements in the system and circulated through the system elements; column 5 lines 26-29) for managing the network operating state. One skilled in the art would have been motivated to variably set the supervisory control channel in Barry according to the disclosure of Ogawa in order to inform downstream optical amplifiers of the precise number of wavelengths to be amplified, thereby preventing over-amplification of

fewer than expected channels. One skilled in the art would also have been motivated to include a setting information indicating means (reference numeral 11 in Figure 4 of Ogawa) and an operating state managing means (reference numeral 12 in Figure 4 of Ogawa) in the network managing means of Barry (e.g. "USER EQUIPMENT" inherent in "TO/FROM USER EQUIPMENT" shown in Figure 13 and further shown as reference numeral 30' in Figure 3) as taught by Ogawa in order to indicate wavelength information to be carried on the supervisory control channel, to specify which idle-band wavelength to select for use as the second optical supervisory channel, and to prevent the transfer of erroneous information regarding wavelength number, respectively. Clealry, one skilled in the art, upon review of Barry's disclosure and the suggestions provided therein, would have turned to prior art such as Ogawa and Hirst for a better understanding of how Barry's supervisory control channels could be variably set, how a idle-band wavelength could have been selected, how a setting information indicating means could be included at the network managing means, and how to specify which idle-band wavelength to select for use as the second optical supervisory channel at the supervisory control channel setting means, and how an operating state managing means could be provided at the network managing means. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to variably set the supervisory control channels, select an idle band wavelength for the second supervisory channel, include a setting information managing means at the network managing means that also specifies which idle-band wavelength to select for use as the second optical supervisory channel, and include a operating state managing means as taught by Ogawa, Hirst, and suggested by Barry in the system of Barry.

Regarding claims 3, 9, and 11, Barry teaches that the supervisory control channel setting means ("TO/FROM USER EQUIPMENT" for the OMC 60 shown in Figure 13 and described in column 7 lines 54-63; "system operator" in column 5 lines 7-14 for the OSC in Figure 13) comprises means (reference numeral 10', 60, 62, 64 in Figure 13) for using said first optical supervisory channel (reference numeral 62 in Figure 13) for indicating said setting information (e.g. output power or gain adjustments of column 5 lines 7-14) between WDM devices (e.g. between reference numeral 10' and reference numeral 12' in Figure 13), and further teaches that the first optical supervisory channel can be used for transmitting operation control information (column 1 lines 31-35 and column 5 lines 7-14).

3. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barry in view of Ogawa and Hirst as applied to claim 1 above, and further in view of Choi (U.S. Patent No. 6,271,962).

Regarding claim 2, the combination of Barry, Ogawa, and Hirst, obviates the setting information indicating means as discussed above, but differs from the claimed invention in that it fails to specifically teach section information for setting a section for which the second optical supervisory channel is to be used, and time information setting a time zone which said second optical supervisory channel is to be used. However, Barry does suggest that section information is used to set a section for which one of the two optical supervisory channels is to be used in that Barry teaches that the node in the section indicated extracts only the data destined for the node in that section, with data not destined for the node in that section being forwarded to the next node in the next section (column 7 lines 10-14). This disclosure by Barry is also suggestive of time information since the nodes most likely reside in different geographical areas, and hence

different time zones, and the supervisory channel can only be used at a specific time. Furthermore, Choi, in the same field of endeavor, specifically teaches a method for using section information to identify a section in which an optical supervisory channel is to be used. Specifically, Choi teaches that each optical element in the system is given an identification number identifying each element along the span (column 4 lines 11-14). This identification number is then used by a setting information indicating means (reference numeral 102 in Figure 1) in setting the supervisory control channel (Figure 4) so that the supervisory control signal is used at a specific section along the span where the element resides (column 4 line 15 – column 5 line 14) and hence a specific time. One skilled in the art would have been motivated to use, in the obviated setting information indicating means of Barry and Ogawa, section information and time information for setting one of the two supervisory channel disclosed by Barry (e.g. OMC, OSC) in order to specifically identify an element on the network at a specific point in time, remotely control that element via the supervisory control signal, and compensate for the time error in controlling the gain of the amplifier should a change of channels occur – all benefits realized by Choi (column 5 lines 62-67). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to use section information for setting the section for which one of the two supervisory channels was to be used, as taught by Choi and suggested by Barry, in the obviated setting information indicating means of the combination of Barry and Ogawa.

Regarding claim 5, the combination of Barry and Ogawa teaches a repeater (reference numeral 12' in Figure 13 of Barry) for controlling an amplification process of an internal repeater amplifier (column 5 lines 11-14 of Barry) based on information of the supervisory

control channels (column 7 lines 10-14 of Barry), but differs from the claimed invention in that the combination of references fails to specifically teach multiplexing supervisory control channels with its own state information and said main optical signals, and transmitting a multiplexed signal. However, Barry does suggest that state information for each repeater is added to the supervisory control signal and transmitted to the terminals in that Barry teaches that the power and gain of the repeaters are monitored (column 5 lines 11-14). Furthermore, Choi specifically teaches a repeater that multiplexes supervisory control channels containing its own state information and main optical signals and transmitting the multiplexed signal (column 2 lines 28-32 and column 4 lines 49-52). One skilled in the art would have been motivated to multiplex a supervisory control channel that includes the repeater's state information with a main optical signal and transmit the multiplexed signal, as taught by Choi and suggested by Barry, in order to perform remote supervision and remote control of an optical repeater amplifier through a shorter path by linking adjacent optical amplifiers (column 1 lines 59-63 of Choi). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to multiplex the supervisory control channel that includes the repeater's state information with a main optical signal and transmit the multiplexed signal as taught by Choi in the system of the combination of Barry and Ogawa.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barry in view of Ogawa and Hirst as applied to claim 1 above, and further in view of Ishimatsu (U.S. Patent No. 6,018,406).

Regarding claim 4, the combination of Barry and Ogawa teaches a WDM transmitting means (reference numeral 10' in Figure 13 of Barry) capable of wavelength-multiplexing and -

demultiplexing said main optical signals (e.g. "Data" in Figure 13 of Barry) and said supervisory control channels (e.g. "OMC", "OSC" in Figure 13 of Barry), but differs from the claimed invention in that the combination of references fails to specifically teach that the WDM transmitting means comprises means for performing a switching control process with an optical signal system or an electric signal system. However, means for performing such switching control processes are well known in the art. Ishimatsu, in the same field of endeavor, teaches a means (reference numerals 140, 150, 160 in Figure 2) for performing a switching control process (via reference numerals 140, 800, 810 in Figure 2) with an optical signal system (e.g. producer of the plurality of λsv). One skilled in the art would have been motivated to employ a means for performing the switching control process taught by Ishimatsu as part of the transmitting means of Barry in order to select a single supervisory control channel from a plurality of available supervisory control channels. For example, one skilled in the art would clearly have recognized that the means for performing a switching control process with an optical signal system as taught by Ishimatsu could be beneficially applied to Barry (Figure 7) in order to selectively switch between the plurality of different supervisory control signals (reference numeral OMC1 – OMC3 in Figure 7), thus selecting only a single supervisory signal at any instant. One skilled in the art would have been motivated to do so in order to allow multiple supervisory control channels to be used, but remain consistent Barry's desire to limit the impact of supervisory control channels on user data channels (column 3 lines 29-30 and column 6 lines 14-20) by minimizing the impact, in terms of dedicated bandwidth for the supervisory control channels, of the supervisory control channels on the user data signals. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include a means for performing a switching control process

with an optical signal system, as taught by Ishimatsu, in the WDM transmitting means of the combination of Barry and Ogawa.

Response to Arguments

5. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection. Hirst clearly teaches that supervisory channel can be made wavelength variable, thereby allowing one skilled in the art to select or specify an idle-band wavelength for use as the second supervisory channel via the elements disclosed by Barry and Ogawa.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB

A. Bello

AGUSTIN BELLO
PATENT EXAMINER
3/11/05